



## 2012-2013 Nominee Presentation Form

### **PART I - ELIGIBILITY CERTIFICATION**

#### **School and District's Certifications**

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.



U.S. Department of Education Green Ribbon Schools 2013

For Public Schools only: [ ] Charter [ ] Title I ☒ Magnet [ ] Choice

Name of Principal Mr. Michael Crocco  
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Barnard Environmental Studies Magnet School  
(As it should appear in the official records)

School Mailing Address 170 Derby Avenue  
(If address is P.O. Box, also include street address.)

New Haven CT 06511  
City State Zip

County New Haven State School Code Number\* 11-093-02

Telephone (203) 691-3500 Fax (203) 691-3505

Web site/URL http://schools.nhps.net/barnard/ E-mail michael.crocco@new-haven.k12.ct.us

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

M. E. Crocco Date 1/8/13  
(Principal's Signature)

Name of Superintendent\* Dr. Reginald Mayo  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name\* New Haven Public Schools Tel. (203) 946-8888

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.

[Signature] Date 1/8/13  
(Superintendent's Signature)

\*Private Schools: If the information requested is not applicable, write N/A in the space.



## **PART II – SUMMARY OF ACHIEVEMENTS**

### **Instructions to School Principal**

Provide a concise and coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School.

## **PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE**

### **Instructions to Nominating Authority**

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

### **Nominating Authority's Certifications**

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct.

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency CT Dept. of Education

Name of Nominating Authority Mr. Stefan Pryor, Commissioner  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

**I have reviewed the information in this application and certify to the best of my knowledge that the**



school meets the provisions above.

  
(Nominating Authority's Signature)

Date 2/6/13

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to [green.ribbon.schools@ed.gov](mailto:green.ribbon.schools@ed.gov) according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509  
Expiration Date: February 28, 2015

#### **Public Burden Statement**

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

## Part II Summary of Achievements

### Barnard Environmental Studies Magnet School

#### Summary of Achievements

Barnard Environmental Studies Magnet School is a pre-k through 8<sup>th</sup> grade school located in urban New Haven, Connecticut. The school serves a population that includes nearly 82% minorities and 62 % eligible for free and reduced lunch. When you enter the lobby of Barnard Environmental Studies Magnet School, you sense that environmental studies are the connecting web that weaves throughout the curriculum. Ceramic tiles depict the history of carbon past present and future, recycled fans have become a student created sculpture, and a mural about sustainability ideas covers the walls. Beyond what the eye can see is our revised distributive leadership and organizational structure that empowers our faculty to create a school environment that promotes high academic achievement.

Student Artwork found along the corridors of Barnard illustrate our four overarching environmental themes. The overarching themes that connect to our core curriculum are the study of fresh water, energy, migration, and Long Island Sound (our local estuary). As a result of our continuous growth and reputation, countless organizations have partnered with us to provide unique experiences for our students. Our partnerships with universities, local environmental groups and agencies are used to provide authentic educational experiences to learn and explore these themes. They also act to engage our students in the pursuit of working with the local West River community to make it a better place for all.

Activities at Barnard align directly with the goals of our mission statement. The environmental curriculum for each grade aligns with district and state curriculum standards. Our goal is to integrate all core curriculums with the environmental theme. Literacy instruction is centered on the use of various texts that directly relates to the environmental theme and environmental studies. Teachers also work to apply science, math, music, social studies, and art concepts to project based learning opportunities.

Our many partners then work with us to develop unique environmental activities and extensions that enhance the already existing curriculum. For example, Solar Youth works with teachers and students from grades 2-5 four times a year. They focus their hands-on outdoor educational lessons on the science curriculum of the district for each marking period. The classes are held in the Barnard Nature Center where students can access the West River and wetlands, and observe the many animals housed at the center. Our Park Rangers work with students in grades PK-2 who visit the Barnard Nature Center once a month for customized visits. At Common Ground High School, our younger students visit their farm; learn about maple syrup and sheep shearing. Our upper grade students prepare, and then freeze pizza sauce to be used later for their science, food preservation unit. The Peabody Museum creates custom, hands-on lessons focusing on the science curriculum for grades 3-8. Topics include climate, natural disasters, ecology and wildlife habitat.

In addition, students who graduate from Barnard have the option to graduate with distinction. To qualify, they must do 20 hours of community service, a science fair project and an environmentally-themed Capstone Project that exhibits their ability to go forward as environmental stewards to the next level of their education.

Our extensive courtyard garden, green houses and nature center on the school campus allow students to explore the natural world as they take on the roles of gardener, naturalist, and environmentalist. Along with a rigorous core curriculum, students have the opportunity to explore the outside world as part of their school day. Whether it is planting, cultivating or harvesting crops in our gardens, raising Atlantic salmon, canoeing on the West River, or learning about the impact new tide gates will make on that river, our students gain an appreciation for the environment that is authentic and meaningful. These authentic experiences allow our students to graduate ready for the challenges of the 21<sup>st</sup> Century. Barnard's environmental programs promote values of respect and concern for both humans and our natural world. All students develop into leaders who will question, evaluate and act in responsible ways in their homes, school and community.

We embrace the three pillars that are the foundation from which our school continues to grow. The LEED Gold building in which we operate provides countless examples of ways we are reducing the consumption of energy, water and recycled products.

Our Green Team strives to create a net zero environmental impact on our planet, a net positive impact on our students and staff health, and have developed a curriculum that increases student literacy about environmental and sustainability issues. Our leadership and staff are continuously working to reduce our carbon footprint and we believe that our recycling efforts are a model for other public schools to emulate. From the educational work we do at Barnard to our LEED Gold facility, we are poised for the prestigious honor of becoming a Connecticut Green Ribbon School. We look forward to moving forward towards this honor.

### Step 1: Green and Healthy Outlook

Key Elements: Participate in CT Green LEAF Schools activities and report on your progress. Maintain a Green Team at your school. Participate in a nationally recognized green school program. Utilize the NAAEE Guidelines for Excellence. Develop partnerships with the local community. Act as a mentor for other schools. ([Green Ribbon School Program – Cross-cutting Questions](#))

Barnard School has developed a Green Team that is composed of teachers, parents and community partners. The committee was developed in 2011 to create opportunities for Barnard students to take the message of environmental sustainability to the community. Barnard School applied for and was granted a Community Foundation Grant to plan, and hold an Energy Fair for the West River Community. The committee met several times to:

- determine the energy saving items that would be made available to the community
- what environmental vendors would be invited to educate the community
- what local and healthy snacks would be served that day
- develop a take home nutritional meal ( soup starter package with instructions)

The Green Team was able to work on these tasks and hold the fair on October 28, 2011 in West River Memorial Park, a location adjacent to the school. The team, now established, will continue to work on other events and activities that promote environmental sustainability for the school and greater community.

Barnard School was invited to host the conference, “Best Practices for a Sustainable Future” at the school’s Nature Center on 11/28/12. The school was featured and our many activities, curriculum and partnerships were shared with the many participants from across CT.

Barnard School has partnered with the Bioregional Group to host several films for the greater CT area that promote the idea of good nutrition and sustainability. Some film titles shown are “Dirt”, “Fresh”, and “Farmageddon”.

Our school has developed partnerships in the local community that include; West River Neighborhood Revitalization Committee, Yale-New Haven Hospital, New Haven Land Trust, CT NOFA, Save the Sound, and WYBC Radio Station. Some of our environmental educational partnerships include; Solar Youth, Peabody Museum, CT River Salmon Association, Mystic Aquarium, Norwalk Maritime Aquarium, Yale Sustainable Farms Program, Common Ground H.S., Sound School, and Schooner, Inc.

Barnard Environmental Lead Teacher, Kel Youngs was named the Environmental Educator of the Year by COEEA in 2011. Instructional Integration Leader Marjorie Drucker was recognized for her 15 year commitment to the raising of Atlantic salmon in a classroom setting by the CRSA.

Communication about our environmental and sustainable efforts are made available through our school publication the Barnard Connection, our Barnard School website, daily announcements on the PA system and phone blasts to parents/teachers. Barnard has been in the local newspapers on many occasions to publicize the many programs that we participate in; West River Clean ups, arrival and return of the Atlantic salmon to CT River tributary, Chef to Schools program, garden activities, and Earth Week. These publications include the New Haven Register and The New Haven Independent. The school has been

featured in NSTA publications such as Science and Children and their Exemplary Science Monograph Series in 2010, “Exemplary Science for Resolving Societal Challenges”.

We mentor other schools through tours that are regularly requested by other schools that are ready to become environmental magnet schools. We have hosted contingencies from Japan and Korea who have come to visit our program as well through the Fulbright Japan Program.

Barnard has participated in Green Leaf School activities by engaging in Webinars that have been provided through the program.

## Step 2: Environmental and Sustainability Literacy

Key elements: Incorporate environmental and sustainability literacy into the curriculum and instructional practices. Measure outcomes of environmental and sustainability education efforts and assess student literacy in these areas. Support learning with professional development for all staff. ([Green Ribbon School Program Pillar Three – 3A, 3B, 3C](#))

Barnard Environmental Studies Magnet School’s mission is to offer a comprehensive education that provides students with a strong academic foundation for lifelong learning, caring relationships with others, and a passion for environmental stewardship. Environmental studies integrate the curriculum; engage students through challenging, inquiry based activities, and inspire a sense of wonder that encourages an active pursuit of a sustainable future. Barnard’s environmental programs promote values of respect and concern for both humans and our natural world. All students develop into leaders who will question, evaluate and act in responsible ways in their homes, school and community. Goals are set by teachers and parents and community members from the west river through our environmental advisory. Most large initiatives are set by this group that meets regularly to discuss school wide initiatives. Another group that assists in this area is our “All Things Science Committee” that meets to plan Environmental Roundups, Earth Week, and the School-Wide Science Fair.

Environmental stewardship is promoted by our activities in the community; our school hosted a “Best Practices for Sustainability Education Conference” presented by the CT Sustainable Schools Project on 11/29/12 where educators from around CT were able to learn about our unique program; a Community Energy Fair for the West River Community was held October 2011 with a grant from The Community Foundation, for local residents to learn how to save energy in their homes; West River Park Clean-ups with Save the Sound and local Radio station WYBC are held each year; our grade 8 students created Barrels of Bounty planters with local residents to promote good nutrition ; our students and teachers assisted in the development of a new community garden adjacent to the school; grade 6 students run a

Farmer's Market at Barnard to promote eating fresh produce; and students will grow Kale for use by Tasty Kale, a new local business, from our garden.

Through our many partnerships students at Barnard learn about their natural world through authentic experiences. Some examples of this are: field trips to Long-Island Sound habitats for students PreK-6 for studies of marine ecosystems; canoe trips with our park rangers on the West River; sailing on Long Island Sound with Schooner, Inc. and partnering with Sound School students aboard their R.V. Island Rover to study the animal population of Long Island Sound; raising Atlantic salmon through the CT River Salmon Association and returning them to a tributary of the CT River for the past 7 years; working in our school garden from seed to harvest and cooking with the food grown; trips to Common Ground High School farm for maple syrup and sheep shearing; and the Yale-Peabody Museum of Natural History for programs using museum artifacts to illustrate concepts in our natural world.

An important goal for our school is the integration of the environmental theme into our core curriculum. Environmental and sustainable concepts are woven into the curriculum through the lens of the district science curriculum. Our environmental curriculum is organized by 4 overarching themes; fresh water, energy, migrations and Long Island Sound studies. Teachers integrate environmental themes into the core curriculum each quarter. They keep logs that explain the activity, the core curriculum areas that are involved and then the outcomes. Our objective is for all our teachers to use environmental studies as the vehicle to teach the common core curriculum. Some examples: 495 documented activities showing integration 2011-2012. Activities include a recycling museum researched and displayed in cafeteria (grade 5), counting cherry tomatoes from the garden for math (grade 1), garden compost sign done in art (grade 4), and environmental stewards poster that integrated shared reading/writing and creative arts (grade 3).

Students in younger grades are assessed on their environmental knowledge by presenting projects during Environmental Roundups; biannual assemblies where their knowledge is shared with their peers. Upper grade students are assessed on their environmental knowledge by completing a Capstone Project at the end of their time at Barnard. Their work is evaluated by faculty using a rubric based of 21<sup>st</sup> Century Skills. This project work counts towards their ability to graduate with distinction from Barnard School. Some past project titles have been Tsunami/Japan, Carbon Footprint, Reflections/Environment, Organic Food, and the Effect of Music on Teens.

Our school has an active courtyard garden where students work with their teachers and our garden coordinator to plant grow and harvest vegetables and flowers that are incorporated into the school salad bar, used for cooking, and are sold by our farmer's market after school program. We also boast our own Nature Center that is used by all grades for environmental programming. Prek-2 meets with our own park ranger each month to enjoy hands on experiences. Grades 2-5 meet each quarter with our partner, Solar

Youth. Customized programs take the existing science curriculum and integrate multi sensory lessons. The nature center is adjacent to the West River. The wetlands provide an outdoor classroom for students who go canoeing with the park rangers and actively investigate the habitat of the West River. Through a Toyota Tapestry Grants grade 6 students studied the health of the river with scientists from Western CT State University before the retrofitting of new tide gates downstream.

Our many partners give exposure to our students to see the work of environmentalists and those in green technologies. We have developed a relationship with The Fitting Room who have applied for a National Science Foundation Grant for an after school program that focuses on STEM careers. Our students also participate in CT Kids Inter-district Club that focuses on STEM activities with several other middle schools in the region.

Professional Development is provided by our many partners are experts in the field. When teachers work with our Park Rangers, and educators from the many museums, universities and other partners, they are receiving professional development as environmental lessons are modeled. Teachers attend a variety of workshops that are provided by the National Science Teacher Association, the CT Science Teacher Association, the CT Outdoor Environmental Association and The Peabody Museum. This year, teacher-directed seminars during faculty meetings will be offered on a variety of environmental themes such as instructional integration, project based learning, and environmental studies instruction.

Some lead staff has been identified and includes the Instructional Integration leader, and the Lead Environmental Science Teacher. The Instructional Integration Leader coordinates all the partnerships, field trips, and any aspect of the school that is associated with the environmental theme. The Lead Environmental Teacher works with all grade levels in the Discovery Room at least once per week to work on inquiry activities associated with science and the environmental curriculum. The Lead Teacher also leads an Environmental Seminar that meets weekly for grade 7 students and a class to develop a Capstone Project during Grade 8 enrichment classes that meets bimonthly. The identified faculty also helps to spearhead activities in the area of program sustainability. Some examples are Shining Solutions CFL light bulb sales, Harvest of Pennies in conjunction with natural harvest season. Special programs that are associated with the mentioned personnel are the Atlantic Salmon Program, garden work, recycling projects, to name a few.

### **Step 3: Healthy School Environment**

Key elements: Implement and actively maintain EPA's Indoor Air Quality Tools for Schools program. Comply with or exceed all CT school-based environmental health laws. Incorporate environmental health issues into the curriculum. ([Green Ribbon School Program Pillar Two – 2A](#))

The New Haven Public Schools has developed a School Climate Survey that monitors many aspects of school; the learning environment, academics, school community, and the physical plant. The survey is

taken by students, parents and teachers. Results are used to inform and plan for continuous improvement in the district. Barnard parents responded to the question regarding school cleanliness with 92.5% (average result for past three school survey years) of parents agreeing that the school is clean.

Our school system has taken steps to ensure that they are in compliance with the following laws that monitor and ensure a healthy school environment:

- CT School Bus Emission Law: Our bus company First Student complies with this law as it pertains to emissions reducing equipment and idling.
- CT School Pesticide Law: NHPS is in compliance with Bill # 5418 effective October 1, 2010
- CT Indoor Air Quality Law: NHPS is in compliance with the Indoor Air Quality program as mandated by Public Act No. 03-022 effective July 1, 2003.
- CT High Performance School Law: Barnard School was built before the enactment of this law, however, all schools filed in the district after 2009 comply with this law.
- CT Green Cleaning Products in Schools Law: NHPS is in compliance with Public Act #09-81 effective on or before July 1, 2011.
- Hazardous Contaminant staff exposure protection protocols: OSHA/Health & Safety Issues and Protocols are followed by all schools in the district.

Additionally, Barnard has an extensive school garden that is entirely organic. The Garden Coordinator uses natural means to amend the soil, and limit the pests that attack vegetation naturally.

The idea of a healthy school environment is tackled by the Solar Youth Stewards Team that meets twice weekly through the Barnard Afterschool Program. Students in grades 5 and 6 identify a local environmental problem, research the issue, brainstorm solutions and offer ways to improve the problem. This year, the issue related to the number of stray dogs in the area. The group shared their findings at a Community Forum held at a venue in New Haven.

On a daily basis, the school has made its mission to cut down on school generated waste and to use single stream recycling in a more consistent manner with great results. The entire school now sorts its breakfast trash and has become more aware of what we eat each day and how it is packaged.

We eat healthy food through the NHPS food service program. The district food program has become a national model with visits from the USDA and others who have come to see, firsthand, the inclusion of whole grains and more fresh produce into the daily cafeteria offerings.

Barnard grows food from its garden to be incorporated into the lunch salad bar and offers produce to the school community through its Farmer's market stand. Students learn about the benefits of locally grown foods through work in the school garden and the garden curriculum.

#### **Step 4: Healthy Nutrition**

Key elements: Comply with the nutrition standards in National School Breakfast and Lunch Programs. Encourage healthy eating in your school including vegetarian and vegan options, and use of local, organic foods. Incorporate healthy nutrition into the curriculum. ([Green Ribbon School Program Pillar Two – 2B](#))

Barnard is in compliance with the National School Breakfast and Lunch Program. The district has worked over the past few years to implement guidelines that were instituted with the reauthorization of the Child Nutrition Act. As a result, students in New Haven Public Schools eat meals that are high in whole grains, fruits and vegetables, and low and fat free dairy products. We also offer a daily salad bar as an option for all our students. The district also has improved its purchasing of CT grown food by working with Fresh Point, a local vendor of fresh produce. Last year 130,000 pounds of local fruit was utilized by the school system for its students. Our school held a round table discussion in May 2010 with USDA Deputy Administrator Audrey Rowe and Congresswoman Rosa DeLauro. Barnard school was chosen as the site of the meeting because of its commitment to fostering healthy nutrition. In addition, New Haven Public Schools has submitted a Healthier U.S. School Challenge (bronze) application for Barnard.

As part of this initiative, Barnard has taken steps to counteract childhood obesity with the development of a program, Bright Bodies, that was funded through a district initiative, BOOST!, and will continue with other grant funding this year. The program which meets twice a week for 20 weeks per year provides students with education about good nutrition coupled with physical activity and consultation with specialists in nutrition, and exercise.

Barnard school participates in the PAW (Physical Activity and Wellness) another wellness initiative in New Haven Public Schools, which promotes physical activity and good nutrition. Through the program students increase their physical activity which also works towards combating childhood obesity.

Barnard school has a very extensive courtyard garden. Barnard employs its own garden coordinator who educates students in grades PK-8 in creating and maintaining garden plots that grow vegetables, herbs and annuals. Classes come to the garden weekly to plant seeds, maintain their plots, and harvest the produce. Food that is grown in our garden is used in the school's lunch program in the salad bar. Visiting chefs through the Chefs- to-School Program, cook with our garden grown food. We also use the food for afterschool cooking classes such as Cooking Matters.

The garden coordinator is a licensed nutritionist who also imparts lessons on good nutrition and eating locally grown items. Students and their parents help to maintain the garden through family garden clean-ups. Many families help to water the garden through the summer months when school is out.

We have run Farmer's Market Summer Camp using curriculum from The Growing Connection. The Growing Connection is a program run by the Food and Agriculture Organization of the United Nations. The school has participated in the program for the past 6 years by using grow boxes whose technology is based on limited moisture to grow produce.

Barnard grows food from its garden to be incorporated into the lunch salad bar and offers produce to the school community through its Farmer's market stand. Students learn about the benefits of locally grown foods through work in the school garden and the garden curriculum.

We hosted a food tasting to expose our students to new vegetarian food options through the Food Service Program of New Haven Public Schools in January. The registered dietician for the district will also work with our grade 6 students in nutrition and consumerism.

Our school curriculum incorporates lessons on good nutrition in the following ways:

In grade 1, students are visited by the Yale Hispanic Puppet Show program several times through the year with shows based on good nutrition.

In the grade 2 science curriculum, students learn about good nutrition and a balanced diet. They work heavily on developing an understanding of soil development and plant growth. Our Yale School-based Health Center educates the students with age appropriate workshops.

In the grade 3 science curriculum, students learn about composting and help to collect compostable lunch waste for the garden compost center.

In the grade 7 science curriculum, students learn about the many techniques used to preserve food. The students visit Common Ground H.S. twice in the year; in the fall they help to harvest tomatoes and make sauce that is frozen. They return to Common Ground H.S. in the spring to use the sauce to prepare pizza.

Our students in grade 8 help to promote organic gardening by working in the new Community Garden adjacent to the school. They also help our West River Neighbors plant Barrels of Bounty, container gardens to grow small kitchen gardens.

Our students share what they learn with the community at our Energy Fairs and Earth Week programs where the students develop outreach tables with information on good nutrition and sustainability. At our last Energy Fair, students helped to create vegetable soup starter bags with recipes that could go home with local residents to cook at home. Student in grade 8 design and run a Family Health Fair where good nutrition is a message. Last year students made smoothies and offered healthy snacks as refreshments to participants.

### Step 5: Physical Well-Being

Key elements: Promote physical health including outdoor opportunities for all students and staff. Incorporate physical well-being into the curriculum. ([Green Ribbon School Program Pillar Two – 2B](#))

#### **Students, staff and families at our school are involved in promoting physical fitness including outdoor opportunities in the following ways:**

- Family Skating Event Nature's Classroom
- Zumba Fitness after school for Staff
- Some teachers utilize *Take 10*, an in class movement program, and a Yoga program that was furnished by the school system.
- Age appropriate Movement CD's have been ordered to be used in classrooms from Pre- K to Middle School through PAWS Program.
- Attention has been focused on school sporting teams, including cheerleading. Basketball is a favorite activity in the afterschool program.
- Outdoor learning activities are provided through the more than 58 field trips per year for grades PK -8 that focus on an aspect of outdoor environmental education

**Time students spend each week in school-supervised physical education:**

Grades Pre K - 6 have two 50-minute gym classes per week. Grades 7 and 8 have two 40 minute classes per week. Fitness and Dance activities are a part of New Haven Public School's physical education curriculum. Additionally physical education teachers lead discussions with classes about what type of physical activities students participate in after school.

**Time per week students spend outdoors:**

- Pre K and Kindergarten Students have daily outdoor time spent on the school play-scape or in the school courtyard garden.
- Grades 1-5 typically have an outdoor play time 3-5 days a week.
- A large playfield is utilized for recess. Students like to play ball games, Frisbee, run relay races, fly kites, and skip rope.
- Outdoor Curricular opportunities also include: Outdoor classes run by Solar Youth at the Barnard Nature Center located in the West River Memorial Park. Students also participate in canoeing, orienteering programs, and bird watching led by Park Rangers at the Nature Center.

**Walking programs and physical fitness classes offered:**

- Information is posted regarding New Haven Parks Department ranger activities program, which includes outdoor activities.
- School Hosted a West River Community Tai-chi class after school.
- Zumba classes, Cross Fit Training, Yoga, and stress reduction techniques are offered for staff
- Family Health night is an annual Student lead event where families try out fitness activities, learn about good nutrition. Students research, plan and run all the activities that evening.

**School participation in the USDA's *Healthier US School Challenge*:**

- The school participates in many school health- related activities utilizing resources of local institutions, including Nutrition and Well Being, sponsored by Yale University, CARE, BOOST and other local stakeholders.
- New Haven Public Schools has also submitted a Healthier U.S. School Challenge (bronze) application for Barnard.

**Integration of outdoor experiences into curriculum:**

Students at Barnard are exposed to a number of outdoor activities that are directly related to the curriculum.

- Over 35 off campus activities are planned giving grades Pre-K to 8<sup>th</sup> graders experiences with outdoor and environmental educators.
- A New Haven City Park Ranger at the Schools Nature Center is available for teachers to schedule extra curriculum related events. Teachers are also free to use the Nature Center and grounds for curriculum related activities.
- Students in the Middle School participate in a community gardening project off school grounds, and also help maintain a United Nation's Peace Garden, located near the school. The courtyard garden is programmed formally through the school's garden coordinator and the garden space is often used for science related experiences, and informally for lunch and relaxation.
- The School Courtyard Garden is host to gardening activities for the whole school community. Classes sign up to maintain raised garden beds, and perform other garden related tasks.
- Upper middle school children participate in creating a dance with Pilobolus Dance Theatre.

- Whole school Participation in an Earth Week Celebration in April, which includes many activities related to environmental awareness and conservation.
- Grade 6 Students conduct water qualities studies in the adjacent West River and participate in a canoeing outing on the river with City Park Rangers. The West River Neighborhood Association sponsors canoeing on the West River for local residents.

### Step 6: Energy Efficiency and Water Conservation

Key elements: Complete Energy Star Portfolio Manager Benchmarking for your building. Implement a plan to measure and reduce energy (including from transportation), greenhouse gas emissions and water use while improving water quality. Use renewable energy sources. Encourage energy efficient transportation to and from school by students and staff. Incorporate energy and water issues into the curriculum. ([Green Ribbon School Program Pillar One - 1A, 1B, 1D](#))

Ways that students, staff and families at your school are involved in monitoring and reducing energy and water usage:

- The physical layout of each classroom includes two sets of light switches: one close to the door that works the lights farthest from the windows, the other near the windows. The premise is one must decide to walk across the room to turn the lights nearest the windows on, thus posing the question, “Do I really need to turn on the lights near the window?”
- Dual flush toilets have an empowering sign that reads, “By installing this water-saving handle with dual-function flush, this facility has demonstrated its commitment to protect and preserve the environment. For the system to work, we need your help. Please take a look at the diagram above and push the handle in the direction which best suits your needs. With your assistance, we can do our part to conserve this precious resource.” This sign puts the ownership on the user to reduce water usage.
- We participate in a Shining Solutions fundraiser each year where students sell CFLs to raise money. There is a kick-off celebration promoting the importance of using CFLs instead of incandescent bulbs. As part of this program, our lead science teacher demonstrates the difference in power consumption using different light bulbs.
- Students in grades 4 and 5 visit the Smart Living Center to learn about energy use and conservation.
- Kill-a-watt meters are used in numerous science explorations including science fair projects and lessons throughout the building; these meters help students answer their own questions about energy usage in comparing various appliances and electronics. For example, classes have explored the amount of residual energy from phantom loads like when a computer is turned off and still uses 14 watts of electricity.

Leadership in Energy and Environmental Design (LEED) or EPA Energy Star (rated 90 or above) or other “green” designation:

- Barnard is a Certified USGBC Gold LEED building; we were the first LEED Certified public school in Connecticut and the second Gold building in the state

Demonstrating a reduction in greenhouse gas emissions over time:

- From the solar panels, Barnard saves on average around 2,000 lbs of CO<sub>2</sub> per month (based on average of monthly amounts saved during 2011)
- The amount saved from passive light through windows, increased R-rating from added insulation, and efficient heating/air conditioning units is unknown.

Percentage of the school's energy is obtained from renewable sources:

- Using 196 rooftop solar panels, Barnard supplies approximately 16-17% of its electrical energy
- On average, Barnard produces 2,200 kWh per month (based on average of production during 2011)

Efforts made by the school to reduce the use of and conserve water in the building and on school grounds:

- The waterless urinals and dual-flush toilets are designed to save 225,000 gallons of water a year

How is your water supply protected from potential contaminants including lead?

- Barnard uses New Haven city water, so the water is protected under local governance by the Greater New Haven Water Pollution Control Authority
- Students learn about water conservation through the Regional Water Authority loan box program for all grades in September.

Steps the school has taken to reduce energy use from transportation:

- Preferential carpool parking spaces are part of the Barnard parking lot design; staff members utilize those spaces when they carpool to school.
- Biking facilities are a part of the campus, allowing members of the school community to park their bikes on school grounds.

Integration of energy and water issues into the curriculum:

- Barnard's over-arching curriculum units are divided into four quarters, the second quarter is all about energy. Classes throughout the school learn about energy during this time including the following units:
  - Electricity and alternative forms of energy production (e.g., coal, nuclear, renewable)
  - Light and sound energy – comparing particles to waves
- Grade 7 students work with our lead science teacher in an Environmental Seminar class that centers on integrating energy conservation into each unit
- During Earth Week in April, Barnard holds an Energy Fair for a day that explores renewable energy sources; students bake S'mores using the sun, they create sun-changing jewelry; learn about wind energy, and much more.

### Step 7: Green Purchasing and Waste Management

Key elements: Assess our building's purchasing policies and waste production. Implement a green purchasing policy and plan to measure and reduce waste. Incorporate purchasing and waste management issues into the curriculum. ([Green Ribbon School Program Pillar One – 1C](#))

Staff, students and parents continue their efforts to reduce waste and other impacts by increasing recycling, composting and by adjusting procurement.

Students, teachers and maintenance staff participate in a recycling program which diverts more than half of the school's municipal solid waste (MSW) from the trash dumpster. They continue to explore ways in which to recover recyclables, as well as compostables, during lunch. Food waste is already collected on a small scale and composted as a part of the schools gardening efforts. Classrooms each have recycling bins which collect "single stream" recycling i.e. paper, cardboard, cans, bottles and paperboard. Barnard school has had a student Recycling Squad for the past five years. The students each assist the custodians in the afternoon with the collection of mixed classroom paper and cardboard. The group also assists in the collection of lunch compost buckets that are placed on each table. Collected compost is then placed in one of our composters in the courtyard garden area. Students take great pride in their involvement with this team.

During Barnard's Earth Week, Barnard partners with E-Reclaim to collect used electronics for collection and recycling. Posters are placed in strategic locations with community members who anticipate the yearly drive and fill bins placed in the lobby of our school. We also collect used toner cartridges to be returned to the manufacturers.

Our school custodian has been instrumental in the success of our Breakfast Recycling Program. The initiative began in September 2012 in response to observations by the staff that recycling needed to be a priority for the school year. Each classroom was provided with a blue recycling bin as well as a gray one. Students have been taught how to sort their trash into single stream vs. regular trash. Liquid waste is strained from morning cereal or emptied from juice and milk cartons. Each day our custodian tallies the number of bags of single stream recyclables versus trash. Barnard has been able to cut down on the average number of trash bags collected from September to December, and increase the number of single stream recycling bags collected significantly in only four months (see Breakfast Recycling Data Sept -Dec 2012 graph below). Students in many grade levels graph their own class data and post in their hallways to share with the school community.

Barnard School has a Recycling Squad composed of grade 7 and 8 students who assist in the collection of mixed paper, lunch compost, and foster school recycling by educating the entire school population to single stream recycling protocol.

The green team is working on ways to influence centralized purchasing to develop environmentally preferable purchasing (epp) for our 38 school district. The New Haven Public School System does follow the CT Green Cleaning Products in Schools Law and uses the Green Cleaning Program provided by Rovic-Hillyard Chemical Co. this includes products for floors, glass, carpet, degreaser, and odor control.

Based upon weights collected on December 5, 2012 Barnard's overall diversion rate for recycling is 29%. The materials diverted for recycling include cardboard, milk cartons, printing and writing papers, and paper board among other common items such as cans and bottles. These figures do not include an additional amount of recycling that is collected weekly.